Advance Journal of Food Science and Technology 9(1): 28-35, 2015
DOI: 10.19026/ajfst.9.1928
ISSN: 2042-4868; e-ISSN: 2042-4876

Submitted: January 13, 2015 Accepted: February 27, 2015 Published: July 30, 2015

Research Article

Constraint Conditions and Realization Approach for Innovation-oriented Food Production City

Shibao Lu and Xiao Bai
Zhejiang University of Finance and Economics, Hang Zhou 310018, China

Abstract: In this study, we have a research of the constraint conditions and realization approach for innovation oriented food production city. Innovative food production city, a mode of urban development, mainly deems innovatively as the leading development strategy of a city, which focuses on independent innovation, aims at promoting a urban economy into an integrate innovative ecosystem by innovating its technology, culture, industries, infastructures and social mechanism. Through analyzing the process of developing an Innovative food production City, this study proposes possible modes and routing selections, which involves the reasonable allocation of the techonique, informatic, educational, cultural and public supporting resources.

Keywords: Independent innovative system, innovative food production city, urban innovativity

INTRODUCTION

Pre-secretary Hu Jintao put forward the objective of striving to build an innovation-oriented nation by following the path of independent innovation with Chinese characteristics, which not only accommodates the needs of development in China, but also serves the needs for China to build itself into a prosperous and strong country and build a moderately prosperous society in all aspects. A crucial link in implementing the strategy of independent innovation lies in giving to full play the supporting, boosting and inheriting role of the regional hub cities in building an innovation-orientated city. As an important hub city in the western region, Chengdu has committed itself to the construction of a modern hub megacity with the optimum entrepreneurial environment, the best living environment and the strongest comprehensive competitiveness in central and western China. As such, the construction of an innovation-oriented city has become the inevitable choice for Chengdu. On June 24, 2008, the Xinhua News Agency reported in an article titled Shenzhen to Become the First Pilot City for Innovation-Orientation in China on the continuous efforts Shenzhen has made in advancing development in independent innovation and high-tech industries. Later, the People's Daily and other major news media all followed on the independent innovation of Shenzhen with commentaries, sparking enormous response across the nation. It is also an existential form through which human beings seek new room for development (Huang, 2003). Then how does Shenzhen, extremely destitute in scientific and technological resources, manage to realize the concentration of innovative factors and resources to enterprises by creating a model of the innovative city suitable for its own development (Wei *et al*., 2007; Li, 2006)? The studies on strategy of innovative development and the choice of models hold important revelation and significance for promotion of the construction of innovation-orientated city nationwide (Zhu, 2005; Zhang *et al*., 2013a, 2011a; Chen, 2008).

In this study, we have a research of the constraint conditions and realization approach for innovation-oriented food production city. Innovative food production city, a mode of urban development, mainly deems innovativity as the leading development strategy of a city, which focuses on independent innovation, aims at promoting a urban economy into an integrate innovative ecosystem by innovating its technology, culture, industries, infastructures and social mechanism. Through analyzing the process of developing an Innovative food production City, this study proposes possible modes and routing selections, which involves the reasonable allocation of the techonique, informatic, educational, cultural and public supporting resources.

MEANING OF INNOVATION-ORIENTED CITY

Innovation is the soul of social progress and the inexhaustible source of driving force for a nation to remain prosperous. In terms of philosophy, it is a special form of human thinking and practice. It is a creative activity in which people break free from traditions and achieve the transformation from the old state to the new one.

Corresponding Author: Shibao Lu, Zhejiang University of Finance and Economics, Hang Zhou 310018, China

Innovation finds its existence in various aspects of human life including the production, life, culture, education, leisure, entertainment and consumption of people, driving progress in society and improving people's living quality and happiness index. A history of human development is a vivid process in which people strives to make innovations and breakthroughs in productive force, productive relationships, superstructure and other fields. The concept of "innovation" as used in innovation-oriented city, a concept with relatively wider denotative meaning, is not confined only to innovations or industrial innovations in the conventional economic activities, but also refers to the organic system covering wider scopes such as urban production, life, infrastructure, mechanism, spiritual culture. Therefore, the so-called innovation-orientated city is the mode of urban development in which innovation is regarded as the dominant strategy. With the strategy of independent innovation as the core, it is an agglomeration in which various innovative factors like technological innovation, cultural innovation, industrial innovation, infrastructural innovation and innovation in mechanism links and supports each other. It is aimed to foster a complete innovative ecosystem where the urban economy and society develops in a coordinated and continuous manner. The concept of innovation-oriented city has the following three connotations:

- An innovation-oriented city is based on the innovative environment and innovative culture of the city and is a specific city which integrates various innovative factors.
- Innovation becomes the main driving force for the development of the city. Independent innovation has become the general strategy of the city, being embodied in the various aspects of the whole city including technological, economic and societal development; strengthening the ability to make independent innovation has become the central link in industrial restructuring and transformation of the mode of economic growth.
- The city has gained its leading edge and international competitiveness on certain key technologies, core areas and strategic industries through its constant efforts to upgrade the industrial level. The innovative awareness, spirits and strengths are ubiquitous in every aspect of urban construction.
- The core issue with building an innovation-oriented city lies in improving the ability to make independent innovation, the acting point being advancing technological progress and industry upgrading.

Background for China to put forward mission to build an innovation-oriented nation: In line with the deployments at the 16th CPC National Congress, the State Council started the compilation of the National Medium-and Long-Term Program for Science and Technology Development geared to the year of 2020 under the direct leadership of the then premier Wen Jiabao in June 2003 and completed the program two years later. Over 2,000 experts from all industries made strategic choices on 20 major themes related to the realization of the ambitious goal of building a moderately prosperous society in all respects. Among them, the core issue which claims the most concern from all sides is the decision to follow the path of developing an innovation-oriented nation by adhering to independent innovation and enhancing the ability to make independent innovations. Internationally, science and technology should be the core element reflecting the national competitiveness against the backdrop of economic globalization. Nowadays, international competition ultimately comes down to competition in science and technology and competition in scientific and technological strength. Some leading countries in the world, be it a developed country or a developing one, invariably regards technological innovation as a predominant strategic choice. Aerospace, medicine, computer, operating system, network and other high-tech technologies in the US have all undergone rapid industrialization, creating enormous wealth. It was the United States that ushered in the information era represented by the high-tech industries in the 20th century.

In 1991, a report that has direct bearings on the American policies in science and technology was brought to the attention of the then US president Bush, which was The National Key Technical Report of the US. The report suggested 22 key technologies in 6 major sectors that are related to the economic prosperity and national security of the US in the future, requiring the government to give support to these key technologies. The report began with a remark from the then US president Bush: "The US must keep developing new technologies and mastering how to turn such technologies into commodities if it intends to maintain and reinforce its position in the competition". Ever since that year, the National Key Technology Commission would submit such a report to the president and the Congress every two years. Such reports will point out the direction for the development of US technologies in the future.

In 1992 when Clinton went to power, he also attached great importance to the technological innovation and the development of high-tech industries, adjusting the Star War Program implemented during the Reagan era as the Information Superhighway Program. In 1993, the Clinton government highlighted the close association between technology and national interests, noting that technology had been the only most important factor behind the high added-value and the sustainable development in the US during the past 50 plus years. After that, each US federal government

would substantially increase input in the scientific research, to the extent that the budget for research and development once reached up to $118 billion in the year 2003, equivalent to nearly RMB 1 trillion. Meanwhile, US also paid high attention to the organization of some major scientific projects with prospective and strategic importance, such as the human genome organization scheme, nanotechnology scheme and the future energy plan, to name just a few. All these are aimed to ensure its leading position in all key areas by consolidating the relevant resources for technological innovation.

In 2004, a report from the US Competitiveness Commission claimed that the technological predominance of the US was not faced with any obvious challenge in all areas surveyed, but enterprises of countries in all such areas were repositioning themselves in order to meet new global competition. The US was not fully prepared to participate in competitions in a world where more countries would possess the innovation ability. Innovation ability would be one of the key factors leading to success and innovation would bring strategic edge to a country. Upon the end of World War II, Japan was relatively weak in the fundamental theoretic research. To catch up with the European and US counterparts, it adopted a strategy of technical innovation which started from "imitative innovation" to "independent innovation", with the focus being on the introduction of major innovative technologies from the Europe and the US. Secondary innovations would be made on such basis. After Japan experienced the economic sluggishness in the 1990s, it became more aware to the practical significance of science and technology in the international competition. In July 2003, the Intellectual Property Department of the Japanese cabinet launched a program to apply intellectual property, making it explicit that Japan would implement the intellectual property strategy, a significant turn and deepening of the original strategy. Japan used to swear to build the country through technology and later to build the country through technological innovation. Now the strategy of building the country through intellectual property was further made public. This is because they knew that competition in the future would be competition in intellectual property. That is to say, those who master more core technology and more intellectual property would be bound to gain a proactive position in the future competition.

In 2004, British Premier Blair entrusted his chief science adviser with the task of working out the long-term planning for science and technology, asking him to be in charge of formulating the ten year technological development framework programme for the UK. After half year's efforts, three ministers from the Ministry of Finance, Department of Trade and Industry and Department of Education under the British government jointly unveiled to the society a science and innovation programme framework for the coming ten years of the UK (Zhang *et al*., 2011b). The core issue of this programme lies in how to guarantee the realization of such goals by continuously increasing input for each fiscal year. This move enabled the scientists to feel "reassured", able to set their minds at ease in carrying out innovative work. It is an essential link of decisive significance in the creation of the innovative atmosphere. It would be impossible for scientists to enjoy a stable working environment if a country didn't give steadfast fiscal supports in the research of strategic, fundamental and frontier high technologies and the research in basic science. The ten year programme the UK came up with just made such promises to the general public as well as the scientific sector.

Over the past twenty years since China initiated the reform and opening up, China has achieved rapid developments in its industrial production through introduction of foreign technologies and capital. The industrial level has been greatly raised and many innovative achievements have been made in the field of science and technology; in particular, the successful launch of Shenzhou V and VI spacecraft and the successful landing of Chang'e I lunar orbiter all gave the nationals a strong boost in self-confidence (Zhang, 2011). However, there was still insufficient momentum for originality in the industrial and technological frontline. The ideological trend that China's industrialization and modernization can simply be realized by introducing foreign technologies and capital was prevalent in the domestic intellectual elite circle. At the National Science and Technology Reward Conference in the previous years, it should occur that the first award for natural science was vacant for three consecutive years and the first award for national technical invention was vacant for six consecutive years. In August 2002, Xu Guanhua, minister of the Ministry of Science and Technology, Lu Yongxiang, dean of the Chinese Academy of Sciences and Xu Kuangdi, dean of Chinese Academy of Engineering all made important remarks on the theme of making greater efforts in pushing forward with original technological innovation at the "First Forum for Chinese Scientists". On a nationwide basis, industrial enterprises had yet become the dominant part in technological innovation, the expenditures for Research and Development was inadequate. For instance, it only accounted for 1.3% of GDP in 2003 and never exceeded 1.5% in the recent years. As China was catching up with sophisticated technological levels in the world, our gap in some aspects was widened instead of getting narrower. In terms of export of high-tech products, many of our products were downstream low-end products. Since foreign manufacturers or multination controlled the core or key technologies, we had to expend 20 to 40% of the costs on foreign patent

fees. An inadequate ability to make independent innovation had seriously impeded the economic development of China (Ma and Han, 2008).

Hu Jintao proposed speeding up construction of a national innovative system with Chinese characteristics in order to improve the ability to make independent innovation. For a country, technology is the most important factor; therefore, a country needs to guarantee the improvement of the national innovative ability by adjusting the policies, improving the environment and consolidating the resources. Developed countries have long came up with the concept of "national innovative system", which means fully consolidating the innovative resources of the whole society and promoting the cooperation and interaction between various innovative factors so as to serve the goal of improving the national innovative system. Simply put, it is to realize the goal of improving the ability to make independent innovation through the construction of such systems. Technological progress and innovation have become the decisive force in the socioeconomic development. Whether to a country or an enterprise, if it didn't possess the core technologies and proprietary intellectual property rights and the ability to make independent innovation, it would not gain the initiative in the future development (Du, 2006).

On the 5th Plenary Session of the 16th CPC National Congress in October 2005, it was made clear "to list the enhancement of the ability to make independent innovation as the strategic base point for scientific and technological development and the central link of industrial restructuring and transformation of growth mode", underscoring that the principle of striving to build an innovation-oriented country by adhering to independent innovation in the formulation of the "eleventh Five-Year" Plan. In January 2006, the CPC Central Committee and the State Council convened the first National Science and Technology Conference, at which the then General Secretary Hu Jintao proclaimed to follow the path of independent innovation with Chinese characteristics and strive to build an innovation-oriented country. This is major decision the CPC Central Committee has made in the face of new situations, which is of profound historical significance. Since the opening of the science and technology conference, there emerged a wave of enthusiasm in boosting independent innovation nationwide. Many provinces or cities have made the building of an innovation-oriented province or city as their objectives.

Constraint conditions for transformation from urban innovation to innovation-oriented city: Here it must be clarified that the transformation from urban innovation to the building of innovation-oriented city is only meant for a small part of cities. The reasons are as follows: first, as innovation usually involves huge input and high risks and the most important technological innovation is dependent on the continuous breakthroughs in scientific knowledge innovation and other basic research, therefore the objective leeway for innovation itself in limited. Especially with the development of a trend in the socioeconomic system to get more delicate and sophisticated, the interconnection and integration of different types of big markets which cover factor market and commodity market naturally determines that only a small number of cities have the possibility to build itself into an innovation-oriented city. Secondly, it is determined by the position that the city lies in the economic divisions and technological divisions. As the innovative factors are rare in itself and such factors are distributed and configured in compliance with the division system and historical evolution worldwide, so it is unnecessary and impossible for all six hundred cities in China to build themselves into innovation-oriented cities. Thirdly, the historical process of globalization will not be reversed by virtue of the will of any individual country, nor will it be changed for the will of any individual. The fluidity of the innovation factors dictates that there is no possibility that all cities will become innovation-oriented cities. But all cities are required to constantly perfect and upgrade its function of urban innovation.

The chain-type transmission relation of such constraint conditions: First, the opulence and quality class of innovative resources is the judgment of the quality and quantity of innovative resources from the perspective of stock. Generally speaking, the education resource, talent reserve, scientific research institutions, the management skills and capability and economic development level are relatively important innovative resources. The opulence and quality excellence of such resources are the basic premise for the possibility of building an innovation-oriented city. Some third-tier cities (prefecture-level cities) are expected to become innovation base for certain special area and further to become an innovation-oriented city in certain special category (specific industries or technologies) for its excellent and opulent possession of certain resources (the settlement of core enterprises, a complete industrial chain and the positioning of some major scientific research institute). Secondly, the ability of "special agglomeration" and "regional agglomeration" of the innovative factors are important constraint conditions for building an innovation-oriented city. This is because it would be extremely difficult for a city to virtually possess all the innovative factors from the initial viewpoint. Though a city may not necessarily possess certain innovative resources in the direct sense, it can develop an agglomeration spatially to attract the innovative resources. Thus the city strengthened its ability to distribute or utilize the required innovative

resources, it is tantamount to an expansive force in terms of innovative resources system. Thirdly, innovative mechanism and institutional arrangements are the intermediary link to the transformation of innovative resources into the innovative ability. The atmosphere which takes the innovative mechanism and institutional arrangements as the core plays a crucial role in the consolidation and utilization of innovative resources. In other words, it aims to induce reaction among the innovative resources through innovative mechanism and the arrangements in the innovative system. Finally innovative ability will be developed and sustained in certain fields by realizing the consolidation and utilization of innovative resources. Fifthly, industrial development needs and industrial cluster effect will form a strong boosting force on the consolidation of innovative resources, the development and sustainment of innovative ability, which are also the basic requirements for industrial development and industrial competition. Eventually, such innovative ability will be applied in the industries to form the innovative effect and contribute to the building of an innovation-oriented city. Thus, it can be seen that the constraint conditions are far from the point-by-point enumeration of the constraint factors, but takes the form an interlinking relationship featuring chain-type transmission (Zhang, 2014a, b).

REALIZATION APPROACHES FOR INNOVATION-ORIENTED CITY

Based on the connotations and characteristics of innovation-oriented cities, we hold that the basic realization approaches are as follows.

Energetically nurture such advanced urban culture as is conducive to independent innovation: First of all, we have to fully understand the importance and urgency of the construction of innovative culture. Innovative undertaking and innovative cultures have always been supplement to each other. Just as Hu Jintao puts it: "Innovative culture breeds innovative undertaking, while innovative undertaking stimulates innovative culture". It is undesirable to simply lay stress on economic aspects rather than cultural aspects, simply "concentrating on pragmatic matters" rather than "neglecting the spiritual issues" in the construction of innovation-oriented cities. We should integrate the construction of innovative culture into each link of the construction of the innovation-oriented city, to give full play to the leading and boosting role of innovative awareness, innovative ideas, innovative thinking and innovative habits on innovations in terms of technology, organization, market, mechanism, system and management and enable the innovative undertaking to grow healthily in the fertile soil of innovative culture. Shenzhen has always been important portal for China to open up to the outside world. As the frontline for reform and opening up, thanks to its pioneering spirit in the process, it has remained at the fore front of innovative practice of the whole province and even the whole country and has gained strong innovative awareness and vitality. However, when it comes to the new requirements on building an innovation-oriented city, Shenzhen still has much room for improvement in the construction of innovative culture and the promotion of innovative cultural power. Shenzhen has made remarkable progress in socioeconomic development over the past 30 years since its establishment, its overall competitiveness ranking in the top few across the country.

People's lives have been significantly improved. Meanwhile, some mentality of self-contentment has also arisen, which has seriously undermined the construction of innovation-oriented city. Therefore, it has now become an urgent task in the construction of innovative culture how to enhance the urgency and sense of responsibility of making efforts to prepare for any adversity, carry forward the fine tradition of hardworking without getting arrogant, maintain the morality of endeavoring to become strong and forge ahead in an enterprising spirit.

Next, we should try to nurture the innovative ideas in and enhance the innovative awareness of the society at large. For the existence and development of each individual, innovation is the human being's essential attributes, or the fundamental characteristics which distinguish himself from animals. For the existence and development of each nation, country and political party, "innovation is the soul for a nation to make progress, the inexhaustible power for a country to keep prosperous and the fountainhead for a political party to retain vitality forever" (Jiang, 2006). Innovation is not only the power for the development of circular economy nowadays, but also the core of the emerging knowledge-based economy. In an innovative era which is marked with the astounding developments in science and technology, innovation means progress and success and no innovation means regression and failure. The construction of innovative culture aims to nurture an innovative-friendly environment in the whole society, so as to make the pursuit of innovation, the achievement in innovation and the enjoyment of innovation become an important value idea which was universally recognized in social lives and to promote innovation become the "cultural self-consciousness" with extensive public participation. To that end, we should incorporate the innovative culture into the construction of advanced socialist culture and even the construction of spiritual civilization as important fields. Meanwhile, we should launch extensive research in innovative culture and the popularization campaign, encourage natural science workers and social science workers to conduct multi-dimensional theoretical

studies and empirical studies on innovative cultures from interdisciplinary the perspectives, to extend the connotative meanings of innovative cultures and to boost the general public's innovative awareness and innovative quality through massive publicizing the innovative cultures. The most important one lies in that it helps to form such an advanced urban culture of "keeping pace with times, renewing our mindset, making light of difficulties and daring to be the first, seizing opportunities and starting up businesses through hard-working", making the whole city to be dipped in the rich cultural atmosphere of independent innovation and to become the pioneer in the innovation-oriented city in China (Li and Tian, 2008).

The construction of innovation-oriented cities in different regions should have different development modes and path choices: Although the objectives of construction of innovation-oriented cities are consistent and for there must be differences in natural resources, location conditions, humanistic and historical backgrounds and regional functions for different cities, the construction of innovation-oriented cities should be in distinguishing development modes and strategic choices, enhance strengths and avoid weaknesses and play comparative advantages to build distinctive development roads. Specifically, cities in different regions should select some preponderant innovative supporting points, give full play to various potential advantages of cities, build innovative network systems with distinct urban characteristics, build cities' core competitiveness and promote innovation abilities by closely combining with their location conditions, natural resources and humanistic and historical backgrounds. For example, in inland of western China, Xi'an City, an ancient capital for thirteen dynasties, such as Zhou Dynasty, Qin Dynasty, Han Dynasty and Tang Dynasty, has profound historical and cultural resources, rich cultural treasure, national culture with distinct features, modern culture with certain strength and deep cultural connotations and there are intensive higher institutions, numerous scientific research institutions and abundant human and intellectual resources. Therefore, the construction of innovation-oriented city in Xi'an should be closely centered on supporting points of science, talent and culture industry innovation to build its own city innovation system. The City should carry out integrated innovation depending on advantages of scientific, human and cultural resources to make cultural industry in Xi'an stronger and build Xi'an to be China's cultural industry center. For another example, relying on 48 colleges and universities, including University of Science and Technology of China and 95 scientific research institutions, including Hefei Institutes of Physics of Chinese Academy of Sciences, Hefei City is building the innovation-oriented city with science and technology advantages, including rich high-level human resources and strong scientific and technological innovation capacity; and is in another path by promoting scientific and technological innovation capacity and strengthening urban innovation.

Give full play to science and culture driving forces and construct industry innovation cluster to promote urban sustainable development: In recent times, science and culture have become two wheels for development of economy and society. Therefore, in construction of innovation-oriented cities, besides giving full play of effect of science and technology as the No. 1 productive force and rapid development of scientific and technological industry and strengthening hard power of economy, greater efforts should be made in urban cultural creative industry and investment in soft power of culture, which are especially important for a city in western China with advantages of cultural resources. In an age of cultural economy, the strength of western cultural resources may change the traditional economic development mode and pattern and bring new development opportunities for cities in western China. This is because the cultural industry is sunrise industry and is featured with high technology, high intelligence and high return and low consumption and low pollution. The cultural industry is an industry manufacturing and operating various cultural products, taking cultural resources as main basis, originality as core. Only if we give full play to humans' imagination and creativity and follow the market rules, can we open up a huge market, enlarge and strengthen the industry scale and build the core competitiveness (Zhang, 2006). Moreover, the originality of cultural industry is driver and innovation growing point to integrate, transform, pull and promote the traditional industry. And it can combine with other industries to form new industrialization mode with rich cultural connotation and to promote industrialization level. Thus, each city should fully develop and use its unique cultural resources, effectively integrate cultural resources, create its own cultural brand, build the cultural industry chain, develop industry cluster and strengthen cultural industry, form its competitive advantages and drive the whole city's development by taking originality as bellwether and core competitiveness as mainstay, facing the domestic and foreign markets and implementing market-oriented operation with advanced management theory (Chengdu Science and Technology, 2006). Only if we give full play to the functions of science and culture, develop and strengthen the scientific and cultural industries, build new urban industry innovation pattern via dependence on science and culture and promote the ability to integration of industry cluster and to urban original innovation, can we form stronger urban competitiveness and

comprehensive strength and fill the city with innovation energy and energy of motion of sustainable development.

Clarify the government's functional orientation in urban construction: The government plays a key role in construction of innovation-oriented city and is not only a predominant factor in construction of innovation-oriented city, but also builder of innovative environment, therefore, Chengdu Government should out its functions in construction of innovation-oriented city, by combining with features of urban economic and social development and of the innovative activities in Chengdu at present. First of all, the government should be a planner of the innovative activities in Chengdu. It should investigate various innovation resources required in construction of innovation-oriented city of Chengdu in a wide range and in depth and formulate relevant innovation policies, which can normalize the innovative activities and encourage the innovators, against integration, configuration of innovation resources and construction of core competitiveness and make overall plans of innovative activities. Second, the government should be a builder of innovative environment. It should follow principles of integration, sharing, improvement and promotion, adopt flexible and diverse modes and strengthen the platform construction for scientific basic conditions, including sharing platform for large scientific instrument and equipment and for scientific literature, basic data and intelligence information. At the same time, great efforts should be made in improvement of soft environment: first, increase scientific investment of Chengdu Government to ensure that growing rate in scientific research funds by finance budget is apparently higher than that in regular revenues; second, guide and establish diverse and multi-channel scientific investment system, with enterprise as the main part and participation of financing institutions and other forces; third, optimize scientific investment structure and strengthen support to study of generic technology, public welfare and establishment of scientific basic conditions and improve management system of scientific funds to ensure standardization, safety and effectiveness of use of funds and increase the service efficiency of scientific investment; fourth, strengthen intellectual property protection, establish marketing and brand strategy of intellectual property and improve level of management, creation, protection and implementation of intellectual property; and last, develop culture of innovation, establish the culture of innovation of encouraging innovation, respecting innovation and protecting innovation, carry forward urban spirit of "Harmony and Tolerance, Wisdom and Integrity and Pragmatism and Innovation", propagate significant scientific and technological achievements and scientific talents, initiate social customs of respecting science, having courage to innovate, be tolerant to failure and pursuing success and enhance awareness of innovation of the society (Yang *et al*., 2006). Last but not least, the government should be a nurser of innovator: first, provide relevant supports of policies and resources for potential enterprises, especially hi-tech enterprises with innovation activities in the making to help them develop to a certain scale and conditions participating in market competition and develop more fresh forces with innovation; second, devote greater efforts to develop and support agencies engaging in configuration of elements of innovation and play a positive role as agencies in coordinating enterprise behavior, standardize market order, strengthen external negotiation, maintain enterprise rights and reinforce information service. And meantime, establish scientific agency service system, including startup incubation, technical equity transaction and consultation and evaluation, standardize scientific agency service criteria, guide operation of scientific agency develop to specialization and marketization and give greater support to develop science risk investment (Zhang *et al*., 2013b, c). In short, the environment, system, mechanism and legal system for self-dependent innovation can be established and each work in construction of innovation-oriented city can be completely promoted through strengthening lead, deepening reform, optimizing management and changing functions.

CONCLUSION

The innovation-oriented city is a principal direction of urban development in the world. The innovation-oriented enterprises should further adapt to the requirements of dynamic condition, efficiency and energy saving nowadays. The innovation-oriented cities in our country carry out self-innovation by relying on startup, innovation and brand-making of innovation-oriented enterprises, break through development bottleneck of cities and the innovation-oriented enterprises should be more suitable for innovation-oriented city environment and survival of innovation space in process of continuous self-organization. The innovation-oriented city is a complicated innovation system. From mechanism and objectives of urban development, the innovation-oriented city collects and collocates resources of innovation, constantly coordinate mutual relationship among each interest subject and conform enterprise subjects to objectives of cities in regional, national even global competition system. The construction of innovation-oriented city needs to balance overall soft and hard environment and reasonably allocate system resources with support of science and technology, information, education, culture and the public (Zhang *et al*., 2012). The government should provide favorable basic service environment, actively create an atmosphere of communication and

competition in industrial innovation and motivate the original and endogenous innovation energy of innovation-oriented enterprises, in accordance with different demands of innovation-oriented enterprises and aiming at establishment conditions in different development stages. The innovation energy of the innovation-oriented city is derived from the reform and innovation of system and innovation of system is the only key to open the innovation-oriented city. The strength and extent of innovation of system basically decide the achievements acquired in construction of the innovation-oriented city.

ACKNOWLEDGMENT

The study is funded by the National Natural Science Foundation of China (Grant No. 51379219), the National Social Science Foundation of China (Grant No. 14BGL205) and the Social Science Foundation of Zhejiang province (Grant No. 14YSXK02ZD).

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